

## Applied Packaged Terminal Air Conditioner and Heat Pump

Replacement 16" × 44" Flat Top – Models PDAE/PDHE





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Bulletin illustrations cover the general appearance of McQuay products

McQuay 16" × 44" Replacement Applied Packaged Terminal Air Conditioners and Heat Pumps are tested in accordance with the Packaged Terminal Air-Conditioners certification program which is based on ARI Standard 310 and in accordance with the Packaged Terminal Heat Pump certification program, which is based on ARI standard 380.

# The Ideal Solution for Replacement



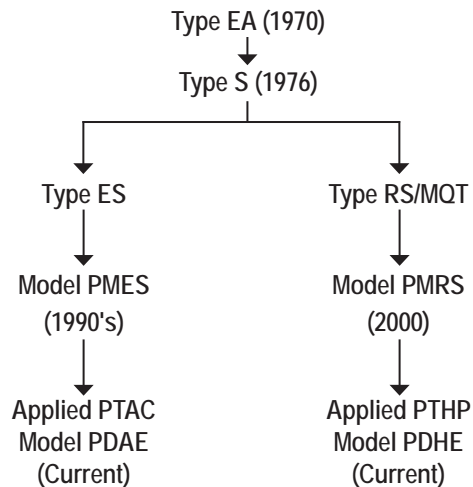
450,000 square foot manufacturing plant, located in Auburn, New York

## Evolution of the 16" × 44" Packaged Terminal Air Conditioners and Heat Pumps:

In 1970, McQuay designed and introduced the first Packaged Terminal Air Conditioner (PTAC) system with an integrated heating and cooling chassis. The 16 × 44 type EA series became a best seller with over 350,000 units sold worldwide.

In 1976 McQuay introduced the first air-to-air packaged terminal heat pump (PTHP) with the 16 × 44 type RS unit. The RS offered unprecedented energy savings in the midst of the energy crisis of that period.

In 2008 McQuay is proud to continue our tradition of design excellence with the introduction of our highly efficient and quiet 16 × 44 Applied PTAC/PTHP.



## Superior zoned heating and cooling:

- Hotel and motel guest rooms
- Hospitals and assisted living facilities
- Apartments, college dormitories and military barracks
- Offices and other spaces in a variety of buildings

## McQuay Applied PTAC/PTHP is the right choice!

- The broadest selection of features and customizable options allows you to choose the ideal unit for each space in your building.
- High energy efficiency and COP ratings provide lower operating costs.
- Reliable cooling/heating and low operating sound levels maximize comfort.
- Proven institutional grade construction withstands demanding applications for long life.
- Easy to install and maintain.
- Engineered and produced in the U.S.A. by McQuay – the pioneer of Incremental® and PTAC/PTHP systems since 1955.



Replacement 16" × 44" Flat top PDAE/PDHE (with accessories)

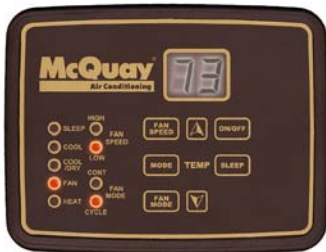
# Beyond "Standard" Expectations

## Room comfort

### Easy to use digital controls

The unit control pad offers digital readout and is easy to use when selecting fan speed, mode of operation and temperature setting. A precise digital temperature display provides guests with an exact comfort setting, thereby eliminating uncomfortable temperature swings and costly overheating/overcooling associated with non-digital electromechanical controls.

### Standard digital touchpad control



### Dehumidification:

The cool/dry mode automatically controls humidity by extending the cool cycle without sacrificing comfort for dehumidification. This mode comes standard with all units. The desired cooling mode (cool/dry for added dehumidification or regular cool) can be selected and locked by the owner or facility manager to meet comfort and dehumidification requirements.

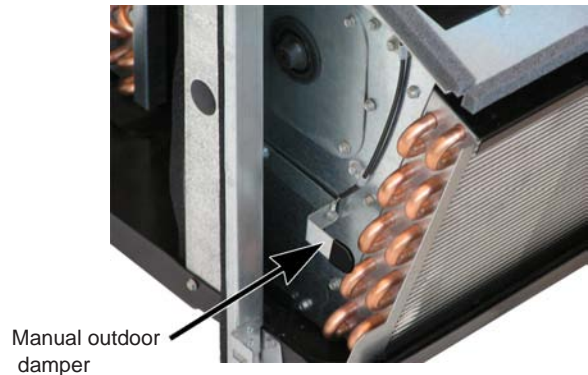
### Constant room temperature monitoring

Units are designed to automatically sample the room temperature and adjust operation to meet desired temperature set points.

### Indoor air quality options

- **Damper control** – Outdoor fresh air is brought in through a manual or automatic (optional) damper.
- **Cleanable filters** – Easy to remove, cleanable filters come standard with each unit.

### Manual fresh air damper control - left end



## Built-in reliability & durable construction

### High-grade cabinetry

Applied PTAC/PTHP cabinets are constructed of 18-gauge steel with baked on powder coat paint for maximum durability and aesthetic appeal. Grilles are constructed of impact resistant polycarbonate.

### Positive condensate removal

Our unique three level sloped basepan design provides positive condensate removal to prevent condensate build-up or overflow.



### Room freeze protection

When the unit senses temperatures of 40°F or lower in an unoccupied room, the heat mode is automatically initiated to prevent freezing. The outdoor fan and compressor are stopped to help prevent coil freeze.



# Beyond “Standard” Expectations

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## Electric heat override

Heat pump units can be manually switched to electric heat, providing added freeze protection if the heat pump mode is not available due to a compressor failure.

## Compressor protection

The life of the compressor is extended through built in protection logic such as:

- High temperature protection if the compressor temperature exceeds 154°F
- Minimum run time
- Minimum off time
- Random restart after a power outage
- Low ambient lockout when the outdoor air temperature falls below 35°F

## Memory recall

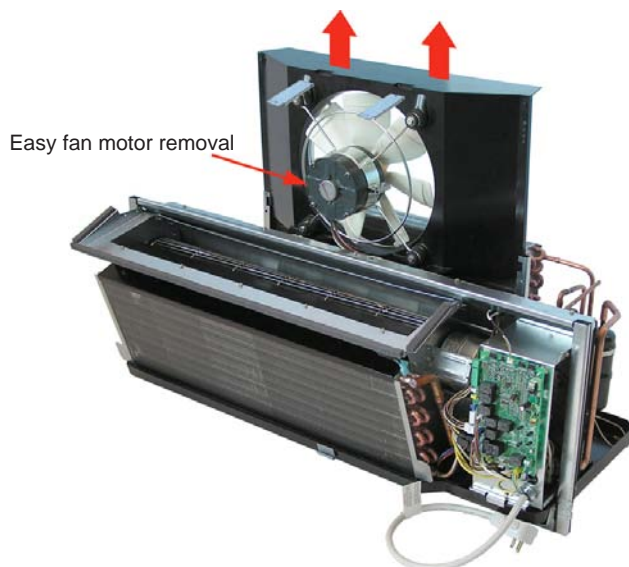
Control settings are saved in a non-volatile memory, allowing the last settings to be recalled after a loss of power.

## Easy installation and service design

### Quick link connections

Applied PDAE/PDHE units are designed for easy access with quick link connections to the control box. The simple slide in/slide out configuration makes it easy to access the electric heater, indoor and outdoor fans, motors, and compressor.

### Easy fan removal



## Easy to read LED diagnostics

Sensors in the unit continually monitor the indoor coil, outdoor coil, and outdoor air conditions. If abnormal conditions are detected, an error code is displayed, removing the guess work in troubleshooting a unit.

## The hydronic experts

McQuay is a leading manufacturer of hydronic heat equipment. We specialize in providing hydronic heat with a host of configurable options.

### Modes

- Cooling only mode with hydronic heat
- Cooling only mode with hydronic heat and supplemental electric heat.
- Top mounted hydronic coil (steam or hot water)

### Controls-with built in hydronic logic

- Normally open/normally closed valve control
- Heat fan lockout – prevent the fan from coming on until there is heat in the pipes.

## 16" × 44" Unit Features

### 16" × 44" Flat Top – Replacement Unit

The right choice for your replacement application

Direct replacement for: McQuay/Remington/Singer models, PMES, PMRS, PMEG, EA, RS, MQA  
(see Replacement Guide, page 5)

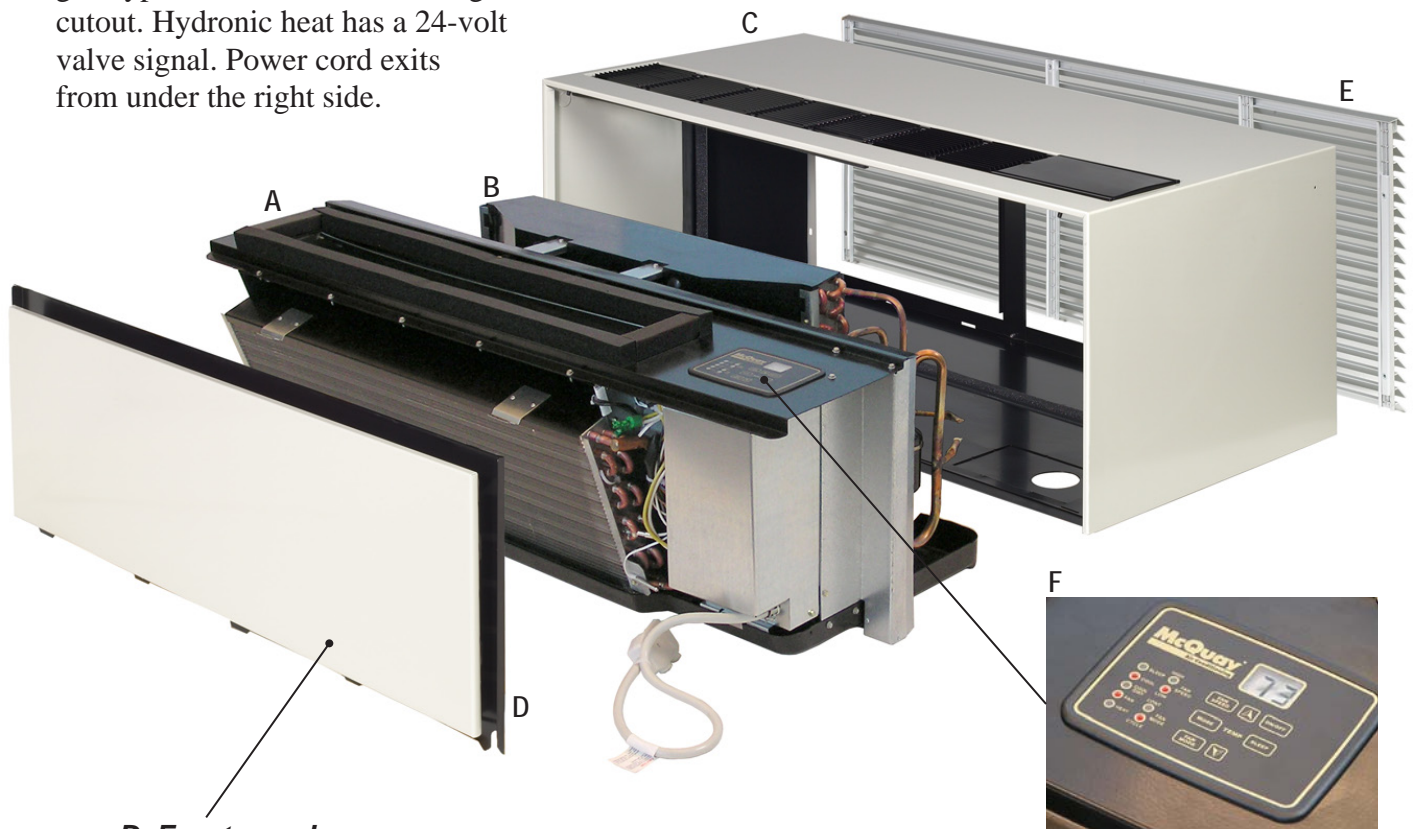
#### A. Heating/Cooling chassis

Complete air cooled refrigeration system with a low noise tangential fan, outdoor propeller fan with slinger ring provides efficient condensate removal. Fan motors and concealed manual fresh air damper (auto damper for hydronic).

The heating system with electric heat consists of low mass, quick response grid type electric heaters with high limit cutout. Hydronic heat has a 24-volt valve signal. Power cord exits from under the right side.

#### B. Evaporator & condenser coil

High capacity coils employ the latest in heat transfer technology to provide maximum comfort to the conditioned space while minimizing the energy required to operate the unit.



#### D. Front panel

Four-way room air return around its periphery, permits flat-on-the-floor installation.



#### Notes

1. Installation of the PDAE/PDHE 16" × 44" chassis into an existing MEA, EA, PMES, PMRS, PMEG cabinet/wall sleeve requires a new cabinet front panel and grille assembly (kit # 668375250), see IM 875.
2. Installation of the PDAE/PDHE 16" × 44" replacement chassis into an existing ES/RS/MQT wall sleeve requires a new cabinet front panel and block-off plate (kit # 668375221), see IM 883.

# 16" × 44" Unit Features

## C. Combination room cabinet and wall sleeve

Constructed of heavy-gauge, zinc-coated phosphatized steel. Antique Ivory powder paint finish provides maximum corrosion protection. Four-position discharge grilles can be easily arranged to provide the proper distribution of air. Through the wall dimension of only  $16\frac{3}{8}" \times 44\frac{7}{8}"$

## D. Front Panel

Modern styling and ingenious design have resulted in the exclusive, multi-purpose front panel. Four-way room air return around its periphery. Its design reduces dust collection and provides easy access to filter.

## E. Louver (accessory)

Heavy-duty, architectural, extruded aluminum to resist weathering.

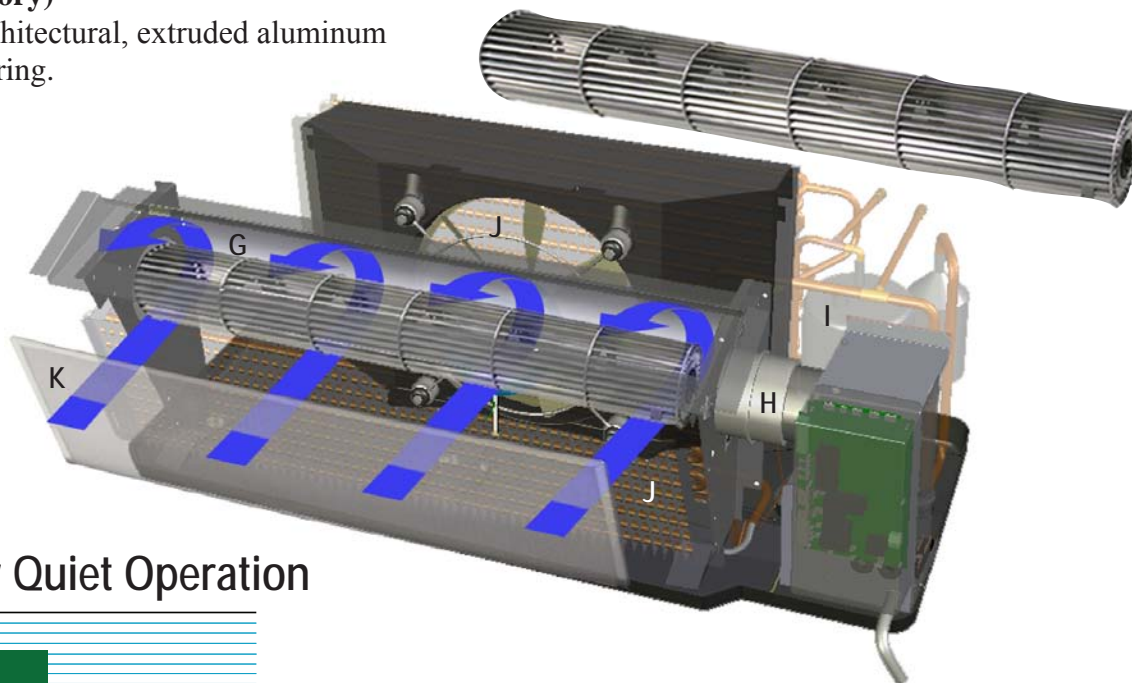
## F. Digital control module

The PDAE/PDHE Control Module is used to control both an integral air conditioner and a source or two of heat. The digital control is operated with a unit mounted touchpad or 24-volt wall mounted thermostat.

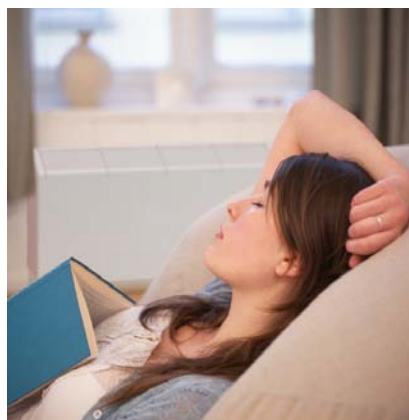
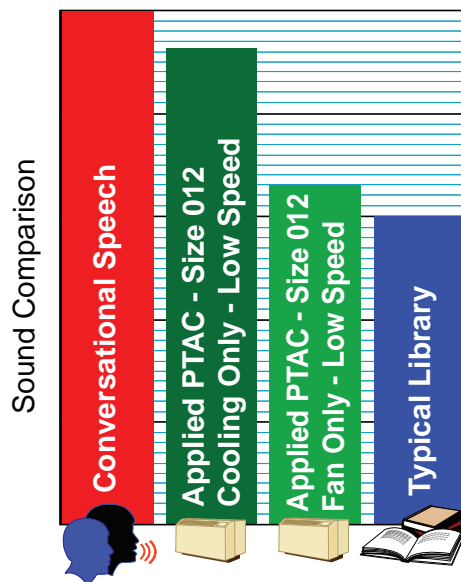
## G. Tangential indoor fan

The indoor fan evenly circulates air across the evaporator coil and into the occupied space. This fan is constructed of metal and the motor incorporates permanently lubricated bearings to help provide uninterrupted service.

## Quiet running



## Exceptionally Quiet Operation





# 16" × 44" Unit Features

## H. Fan motors

High efficiency, quiet PSC fan motors. All motors are permanently lubricated for extended life. The outdoor fan motor is totally enclosed to help prevent damage from driving rain or excess condensate accumulation in humid climates.

**H. Indoor fan motor**



**H. Outdoor fan motor**

## I. Compressor

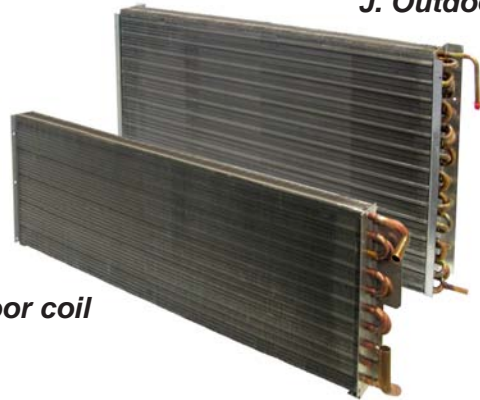
The reliable, high efficiency rotary compressor is hermetically sealed and designed for continuous operation. The compressor is isolated to minimize vibration and sound transmission for quiet operation.



## J. High capacity heat transfer surfaces

The finned/tube coils incorporate state-of-the-art technology. The unique design of these coils provides high efficiency and low air pressure drops, in addition to allowing for easy cleaning during scheduled maintenance.

**J. Outdoor coil**



**J. Indoor coil**

## K. Filtration

Room side return air is filtered through this permanent, washable polypropylene mesh filter. It is UL listed class II, 38% average arrestance efficiency (ASHRAE test), with low resistance to airflow (0.02 w.g. at 300 cfm), and high dust holding capacity (55 grams).



**K. Permanent, washable polypropylene mesh filter**

(Shown in front return configuration)

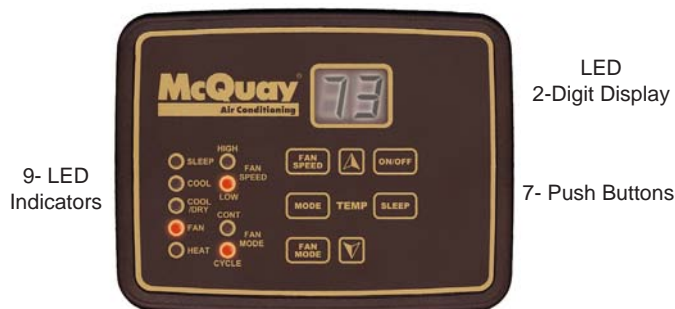
# 16" × 44" Unit Features

## Digital touchpad control

The PDAE/PDHE Standard Touchpad Control is used to control both an integral air conditioner and a source of heat. The user will by default control the electronic controller via the touchpad. The user can select with a jumper for the unit to receive commands from a remote thermostat.

### Standard (non-programmable) digital touchpad

- Provides 5-selectable modes of operation: Sleep, Cool, Cool/Dry, Fan, Heat
- Temperature can be displayed in Fahrenheit (default) or Celsius



## Inputs and outputs

- Indoor coil sensor, (ICS)
- Outdoor coil sensor, (OCS)
- Indoor air sensor, (IAS)
- Outdoor air sensor, (OAS)
- Remote thermostat, T'STAT (RCBYWG)
- Power supply: (24VAC)
- Line voltage input, (L1, L2)
- Indoor fan standby voltage, (L1STB L2STB)
- Control selection: (LUI, T'STAT)
- Model selection: (AC/E, HP, HP/E)
- Time delay bypass, (TEST)
- Indoor off fan cycle: (FAN, OFF CYCLE-10, 20, 30, 1 HR)

## Outputs

- Compressor output, COM
- Indoor fan, BLOWER LO, HI
- Outdoor fan, OUTDOOR FAN
- Electric heater, ELE
- Reversing valve, REV VALVE

## Keys and indicators labels

7 Push Buttons	ON/OFF, FAN SPEED, MODE FAN MODE, SLEEP Temp buttons: ▲ for Temp UP and ▼ for Temp DOWN
9 LED Indicators	SLEEP, COOL, COOL/DRY, FAN, HEAT, HIGH, LOW, CYCLE, CONT.
LED 2 Digit Displays	No Label

## Display function legend

Tr = Room Temperature  
hI = High Room Temperature  
Lo = Low Room Temperature  
LA = Low Ambient Lockout  
rT = Remote Thermostat Control  
tP = Touchpad Control  
t = Time  
Ts = Temperature Setpoint  
Rf = Room Freeze Condition  
CF = Coil Freeze Protection  
F = Fahrenheit  
C = Celsius  
LC = Control Lockout Mode

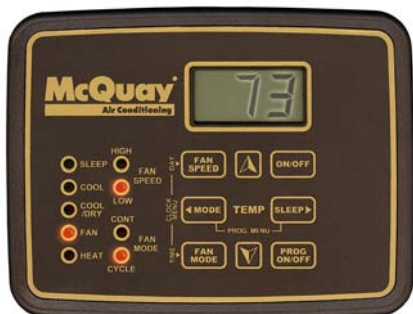
## Remote thermostat control

The remote thermostat can be any thermostat that can interface with an electronic thermostat via RCBWYG terminals. The Control Selection jumper must be in T'STAT position. During a call the remote thermostat will pass R back to the controller on a respective terminal. The push buttons on the touchpad become inactive in the remote thermostat mode. However, the control pad LED display will indicate the mode of operation, and the room temperature.

# 16" × 44" Unit Features

## Premium (7-day programmable) digital touchpad

- Provides all the features of the Standard Controller, plus master/slave, infra-red control, auto damper, wall mounted remote thermostat, heat fan lockout



9-LED Indicators

LED with Program Setting Display

8- Push Button Display Inputs

## Display inputs:

<b>ON/OFF</b>	Turn the unit on and off
<b>▲</b>	Increase the temperature set point
<b>▼</b>	Decrease the temperature set point
<b>MODE</b>	Select one from the following modes: COOL, COOL/DRY, FAN, or HEAT
<b>FAN MODE</b>	Change the mode of fan operation between CYCLE and CONTINUOUS
<b>FAN SPEED</b>	Change the speed of the fan between HIGH and LOW
<b>SLEEP</b>	Activate the sleep mode and set the sleep time
<b>PROG ON/OFF</b>	Button to activate and deactivate the program mode

## Wireless remote control (optional)

**Note:** Only available on select models.



## The remote consists of 10 push-buttons

- Power:**  
Functions the same as the ON/OFF button on the touchpad.
- Sleep:**  
Functions the same as the SLEEP button on the touchpad.

## Mode buttons

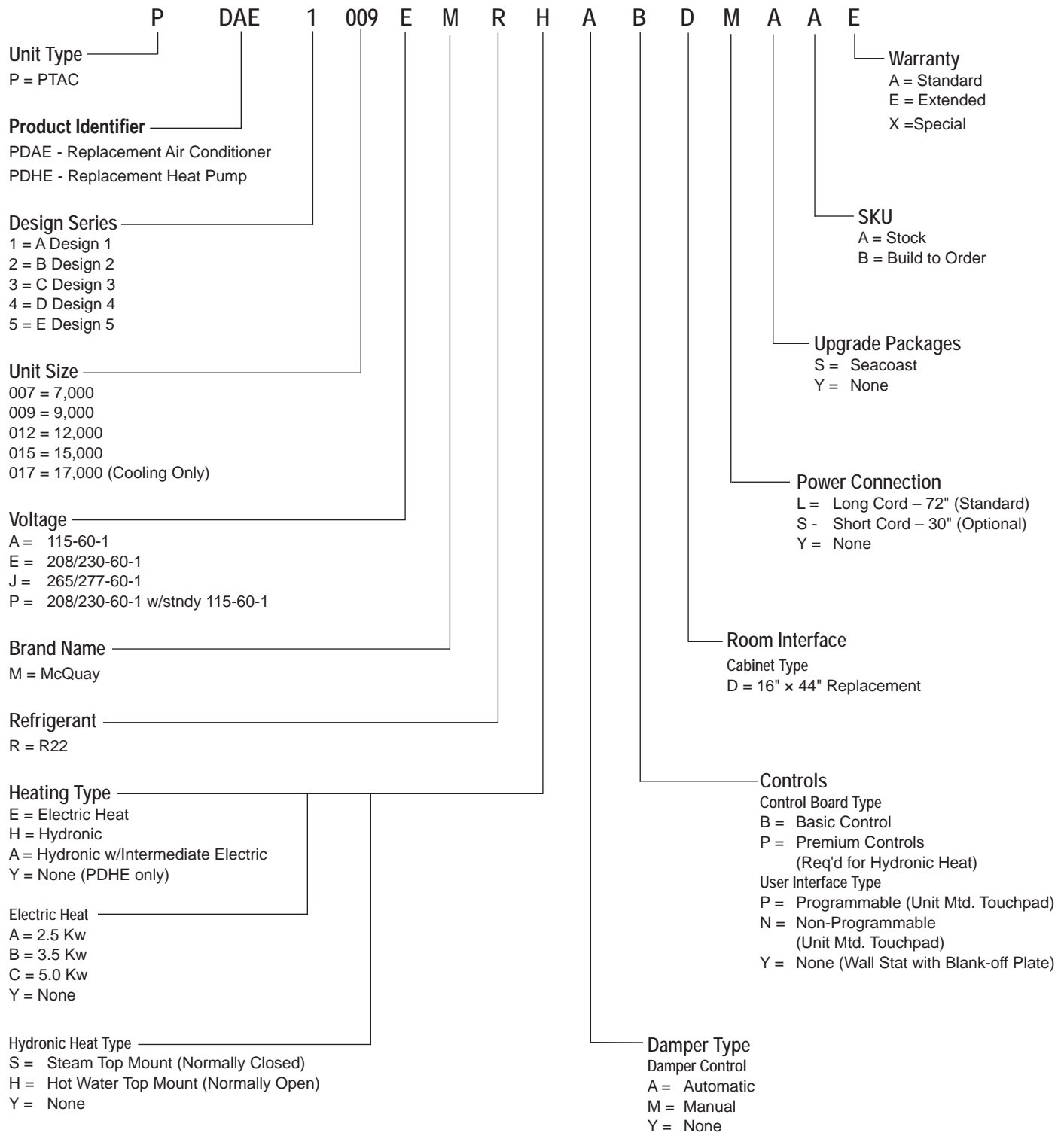
- Heat, Cool, Cool/Dry, Fan:**  
Performs the same function as the MODE button on the touchpad and allows user to select the specific mode of operation using only one button.
- Temp buttons ▲ +, ▼ - :**  
Functions same as the buttons on the touchpad and allows the user to change the setpoint.
- Fan speed buttons (high & low):**  
Performs same function as the FAN SPEED button on the touchpad and allows user to select the specific speed using only one button.

The remote must be aimed in a line of sight of the window in the upper right corner on the front panel, at less than a 45° angle from center of the window.

**Note:** The control board will beep when any button is pressed on the remote control to confirm signal.

# McQuay Model PDAE/PDHE Product Nomenclature

**Note:** For Illustration purposes only. Not all options available with all models.  
Please consult a McQuay Sales Representative for specific availability.





# Model PDAC/PDHP Quick Selection Guide

## Chassis Customization Options

Description		Unit Size				
Unit Type - PDAE/PDHE		007	009	012	015	017
Cabinet Type	16 x 44 Top Mount Hydronic	•	•	•	•	•
	16 x 44 Flat Top Replacement Unit	•	•	•	•	•
Voltage	115/60/1	•	•	•		
	208/230/60/1	•	•	•	•	•
	265/277/60/1	•	•	•	•	
	208/230-60/1 w/ standby 115/60/1	•	•	•	•	•
Cooling Capacity BTUH		7,900	10,500	12,800	14,800	17,000
Heating Options						
Electric Heater (kW)	2.5	•	•	•	•	•
	3.5	•	•	•	•	•
	5.0			•	•	•
Hydronic - Hot Water or Steam		•	•	•	•	•
Heat Pump		•	•	•	•	•
Heat Pump with Supplemental Electric Heat		•	•	•	•	•
Air Flow CFM - High/Low Speed in Heating	380/340	•	•	•	•	550/380
Outside Air Damper - Vent - CFM-High/Low Speed	50/40	•	•	•	•	70/50
Damper						
Auto Damper Control (Standard for most Hydronic Heat)		•	•	•	•	•
Manual Damper Control (Not available for most Hydronic Heat)			•	•	•	•
Unit control	Unit Mounted Non-programmable	•	•	•	•	•
	Unit Mounted Programmable	•	•	•	•	•
	Remote, Hand Held IR	•	•	•	•	•
Seacoast Coating Package		•	•	•	•	•

### Notes:

For illustration purposes only. Not all options available with all models.  
Consult a McQuay Sales Representative for details and availability.

 = Not Applicable

1. Installation of the PDAE/PDHE 16" x 44" chassis into an existing MEA, EA, PMES, PMRS, PMEG cabinet/wall sleeve requires a new cabinet front panel and grille assembly (kit # 668375250), see IM 875 ([www.mcquay.com](http://www.mcquay.com)).
2. Installation of the PDAE/PDHE 16" x 44" replacement chassis into an existing ES/RS/MQT wall sleeve requires a new cabinet front panel and block-off plate (kit # 668375221), see IM 883 ([www.mcquay.com](http://www.mcquay.com)).

## Other Customization Options

- Custom Sleeve - Extended depths, brick stops, or support legs can be added for panel wall or curtain wall applicatons.
- Custom Cabinet - Extended depths, colors, kickplates
- Factory-installed valves and hydronic coils
- Power Vent - Indoor Air Quality (IAQ) option

# ARI Performance Data<sup>(6)</sup>

UNIT SIZE			007			009			012			015		017	
Cooling	Total Btuh(1)		7,900	7,900	7,900	10,200	10,200	10,200	12,800	12,800	12,800	14,800	14,800	16,600	
	Sensible Btuh(1)		6,800	6,800	6,800	7,900	7,900	7,900	8,900	8,900	8,900	9,600	9,600	12,000	
	EER		12.10	12.10	12.10	11.60	11.60	11.60	11.20	11.20	11.20	10.10	10.10	9.40	
	Volts		115	208/230	265	115	208/230	265	115	208/230	265	208/230	265	208/230	
	Full Load Amps(5)		7.03	3.39	3.04	8.83	4.49	4.04	11.86	5.83	5.19	7.43	6.49	8.75	
	Watts(1)		653	653	653	879	879	879	1,143	1,143	1,143	1,465	1,465	1,766	
Electric Heat(3)	Volts			208/230	265		208/230	265		208/230	265	208/230	265	208/230	
	2.5 kW	kW		2.2/2.7			2.2/2.7			2.2/2.7		2.2/2.7		2.2/2.7	
		Amps		10.7/11.9			10.7/11.9			10.7/11.9		10.7/11.9		10.7/11.9	
	3.5 kW	kW		3.1/3.8	3.5		3.1/3.8	3.5		3.1/3.8	3.5	3.1/3.8	3.5	3.1/3.8	
		Amps		15.2/16.8	13.7		15.2/16.8	13.7		15.2/16.8	13.7	15.2/16.8	13.7	15.2/16.8	
	5.0 kW	kW								3.9/4.8	5.0	3.9/4.8	5.0	3.9/4.8	
		Amps								19.0/21.0	19.3	19.0/21.0	19.3	19.0/21.0	
Hydronic Heat(4)	Valve & Fan Motor Amps		0.74	0.41	0.32	0.74	0.41	0.32	0.74	0.41	0.32	0.41	0.32	0.41	
	Hot Water (Btuh) Hi/Lo		18,400/15,600			18,400/15,600			18,400/15,600			18,400/15,600		18,400/15,600	
	Steam (Btuh) Hi/Lo		22,400/22,300			22,400/22,300			22,400/22,300			22,400/22,300		22,400/22,300	
Heat Pump Model															
Cooling	Total Btuh(2)		7,300	7,300	7,300	9,900	9,900	9,900	11,700	11,700	11,700	14,000	14,000		
	Sensible Btuh(2)		6,700	6,700	6,700	7,900	7,900	7,900	8,000	8,000	8,000	9,100	9,100		
	EER		11.2	11.2	11.2	11.2	11.2	11.2	10.5	10.5	10.5	9.5	9.5		
	Volts		115	208/230	265	115	208/230	265	115	208/230	265	208/230	265	208/230	
	Full Load Amps		7.03	3.39	3.04	8.83	4.49	4.04	11.86	5.82	5.04	7.42	6.34		
	Watts(1)		652	652	652	884	884	884	1,114	1,114	1,114	1474	1474		
Reverse Cycle Heat	Btuh(2)		7,000	7,000	7,000	9,100	9,100	9,100	10,700	10,700	10,700	13,900	13,900		
	COP		3.6	3.6	3.6	3.52	3.52	3.52	2.95	2.95	2.95	2.91	2.91		
	Volts		115	208/230	265	115	208/230	265	115	208/230	265	208/230	265	208/230	
	Full Load Amps		7.03	3.39	3.04	8.83	4.49	4.04	11.86	5.82	5.04	7.42	6.34		
	Watts(2)		570	570	570	758	758	758	1,063	1,063	1,063	1,400	1,400		
Electric Heater	Voltage			240V	265V		240V	265V		240V	265V	240V	265V	240V	
Minimum Circuit Ampacity	2.5 Kw			15.51			15.51			15.51		15.51		15.51	
	3.5 Kw			21.92	17.07		21.92	17.07		21.92	17.07	21.92	17.07	21.92	
	5.0 Kw									27.38	24.1	27.38	24.1	27.38	
	Hydronic Heat		8.19	3.92	3.52	10.44	5.29	4.77	13.92	6.82	5.95	8.82	7.57	8.82	
Time Delay Fuses or Type HACR Circuit Breaker	2.5 Kw			15			15			15		15		15	
	3.5 Kw			20	15		20	15		20	15	20	15	20	
	5.0 Kw									25	20	25	20	25	
	Hydronic Heat		15	15	15	15	15	15	15	15	15	15	15	15	
NEMA Receptacle Type Required	2.5 Kw			6-15R			6-15R			6-15R		6-15R		6-15R	
	3.5 Kw			6-20R	7-20R		6-20R	7-20R		6-20R	7-20R	6-20R	7-20R	6-20R	
	5.0 Kw									6-30R	7-30R	6-30R	7-30R	6-30R	
	Hydronic Heat		5-15R	6-15R	7-20R	5-15R	6-15R	7-20R	5-15R	6-15R	7-20R	6-15R	7-20R	6-15R	
Airflow CFM	Cool		High	Low		High	Low		High	Low		High	Low	High	Low
			360	330		360	330		360	330		360	330	540	360
	Heat		380	340		380	340		380	340		380	340	550	380
			Vent		50	40		50	40		50	40		50	40

(1) Based on ASHRAE and ARI test conditions of 95°F DB/75°F WB outside, 80°F DB/67°F WB inside.

(2) Based on ASHRAE and ARI test conditions of 47°F DB outside, 70°F DB inside.

(3) Electric Resistance Heat Watts x 3.41 = Btuh. Electric Heating Watts and Amps include Indoor Fan Motor.

(4) Water – Based on ASHRAE and ARI test conditions of 200°F EWT, 180°F LWT, 70°F EAT with a 1.8 gpm flow rate.

(5) Cooling Full Load Amps includes Compressor, Indoor Air Fan and Outdoor Air Fan.

(6) Tested in a slope-top cabinet configuration.

## Unit Weights - (lbs.)

Model	007	009	012	015	017
16" x 44" PDHE (Packaged)	131.0	138.5	139.4	147.1	
16" x 44" PDHE (Chassis)	116.0	123.5	124.4	132.1	
16" x 44" PDHE (Packaged)	129.5	137.0	137.9	145.6	148.8
16" x 44" PDHE (Chassis)	114.5	122.0	122.9	130.6	135.8

16" x 44" Combination Room Cabinet & Wall Sleeve

(Packaged) .....36 lbs. (36 kg)

Louvers

Architectural.....8 lbs. (3 kg)

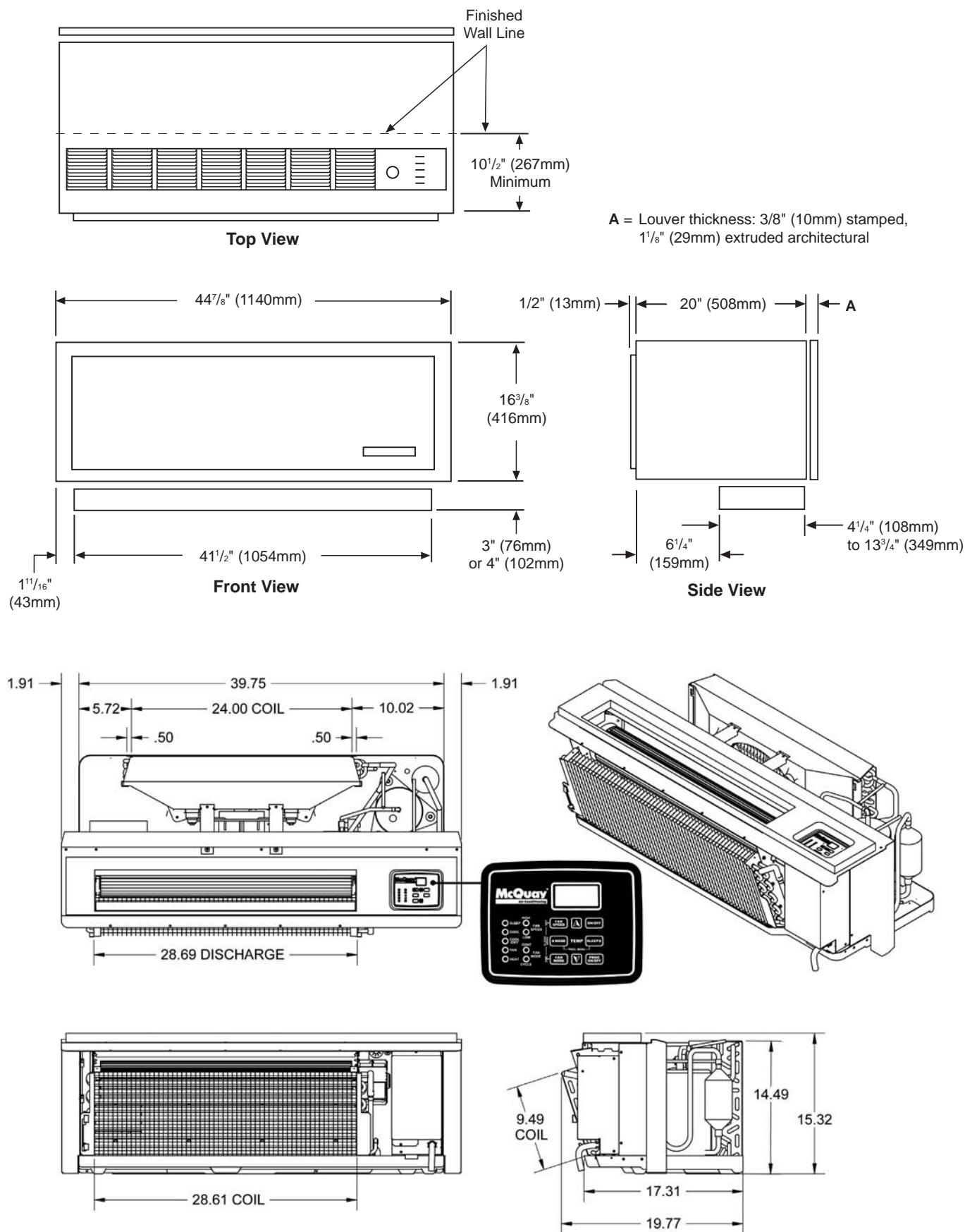
Subbase

3" (76mm) High Electrical.....10 lbs. (5 kg).

4" (102mm) High Electrical.....12 lbs. (5.4 kg)

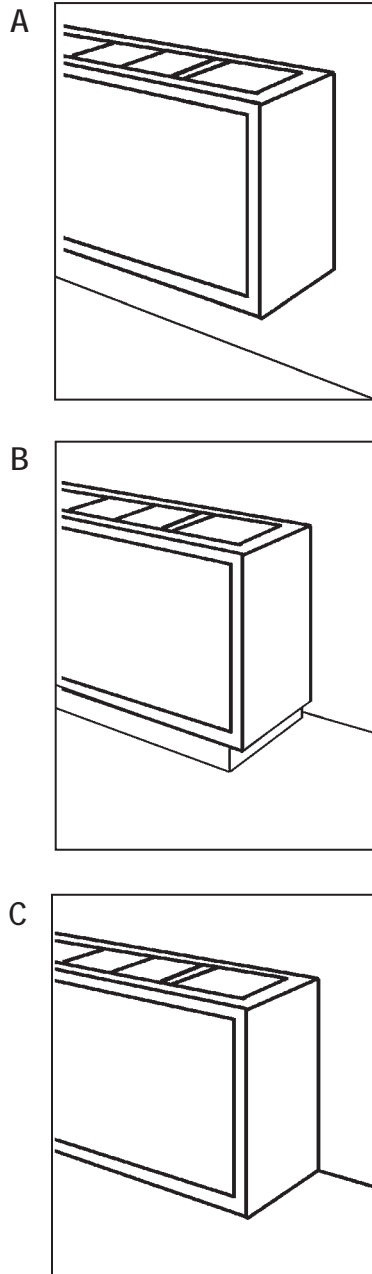
# Dimensional Data – 16" × 44" Replacement Unit

PDAE – Air Conditioner with Electric Heat / PDHE – Heat Pump with Electric Heat



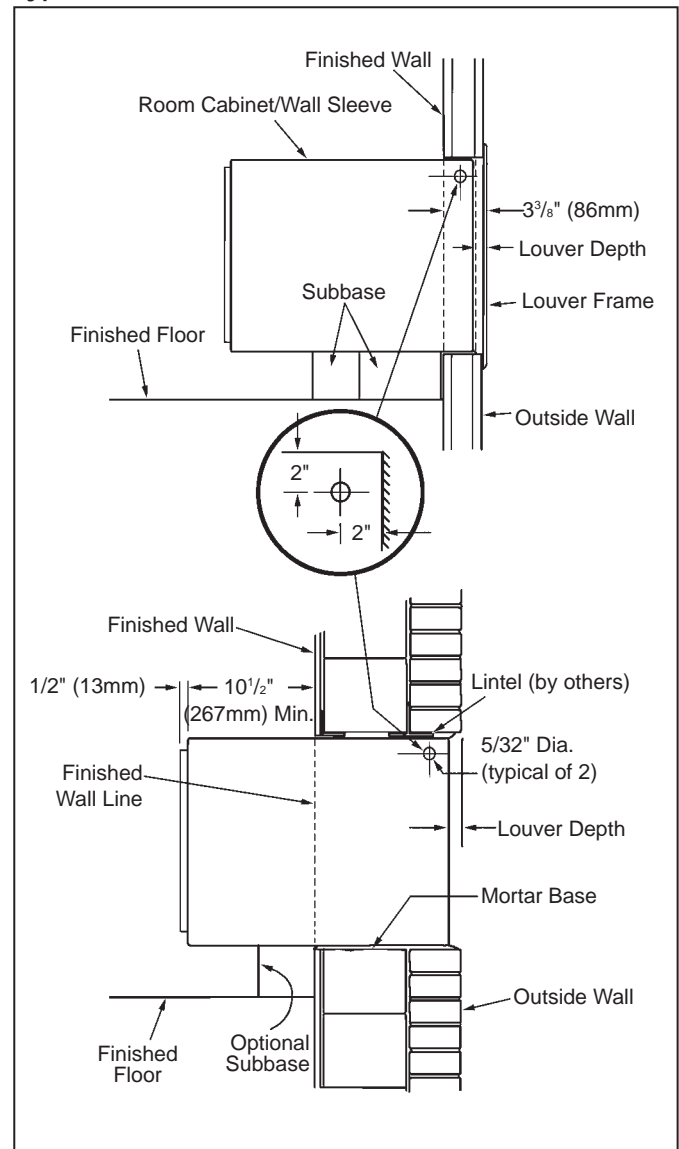
# Typical Installation – 16" × 44" Replacement Unit

The 16" × 44" PDAE/PDHE conditioner can be mounted flat on the floor for the lowest possible silhouette, off the floor at any convenient height, or on an optional universal telescopic subbase which adjusts to any wall thickness.



A = Above-the-floor installation  
 B = Installation on telescopic subbase  
 C = Flat-on-the-floor installation

## Typical room cabinet and wall sleeve



### Notes:

1. Subbase is optional in 208/230V unit, but standard on 265V. Louver frame is optional on all units.
2. Installation of the PDAE/PDHE 16" × 44" chassis into an existing MEA, EA, PMES, PMRS, PMEG cabinet/wall sleeve requires a new cabinet front panel and grille assembly (kit # 668375250).
3. Installation of the PDAE/PDHE 16" × 44" replacement chassis into an existing ES/RS/MQT wall sleeve requires a new cabinet front panel and block-off plate (kit # 668375221).



## Accessories

### Wall mounted thermostats – quick selection guide

Thermostat Item Number	107095701	107095801	107095901
Single Stage	•	•	•
Two Stage			•
Heat Pump	•	•	•
Manual Changeover (Cool/Off/Heat)	•	•	•
Settable Differential Range			•
Auto Changeover			•
Status LEDs			•
Backlit Display		•	•
7-Day Programmable		•	•
Temporary and Vacation Hold		•	•
Programmable Fan On/Off Delay			•
Non-Programmable	•		
Hard Wired	•	•	•
Wireless			
4 or 5 Wire Capable	•	•	•
Freeze Protection	•		
Fan Switch - On/Auto	•	•	•
Lockout Feature			•
Fahrenheit or Celsius Display	•		
Remote Sensor Option			•
Power Loss Memory Protection	•	•	•
Anti-Short Cycle Delay	•	•	•
Max/Min. Set Point Control			•
Energy Management Interface			
California Title 24 Compliant	•	•	•

## Accessories

### Wall mounted, non-programmable thermostat

Manual changeover one-stage heat and cool or one-stage heat pump

McQuay Part No. 107095701 (1-Pk, White with Wall Plate)



#### Features and benefits

- Hardwired
- Simple operation
- Large LCD display
- No batteries required
- A/C compressor protection - 5-minute time delay to protect compressor after it turns off
- Single stage heat pump
- Freeze protection feature
- Zone capable
- 4- or 5-wire compatible (C is optional for non-heat pump systems)
- Manual Changeover

#### Specifications

##### Electrical rating:

- 24 VAC (18 to 30 VAC)
- 1 amp maximum per terminal
- 3 amp maximum total load
- 30-minute power loss memory retention

##### Temperature control ranges:

- 45°F to 90°F, Accuracy:  $\pm 1^\circ\text{F}$

##### System configurations:

- 1 stage heat, 1 stage cool or single stage electric heat pump

##### Terminations:

- R, C, W, Y, O, B, G

### Wall mounted, 7-day programmable thermostat

Manual changeover one-stage heat and cool or one-stage heat pump

McQuay Part No. 107095801 (1-Pk, White with Wall Plate)



#### Features and benefits

- Simpleset™ logical programming for set-up and set-back temperatures and times
- Simpleset™ feature enables easy copying of one day's programming for the entire week
- Programmable fan to circulate air during any program setting.
- Vacation hold overrides programming
- Enables separate morning, day, evening, and night settings for every day of the week
- Clear, backlit display makes it easy to see time, temperature, and setpoint — even in the dark
- A/C and heat pump modes — 4-minute time delay to protect compressor after it turns off
- Lockout feature prevents unwanted tampering
- Manual Changeover

#### Specifications

##### Electrical Rating:

- 24 VAC (18 to 30 VAC)
- 1 amp maximum per terminal
- 3 amp maximum total load
- 30-minute power loss memory retention
- Easy access terminal block

##### Temperature control ranges:

- 45°F to 90°F, Accuracy:  $\pm 1^\circ\text{F}$

##### System configurations:

- 1 stage heat, 1 stage cool or single stage electric heat pump

##### Terminations:

- RC, RH, C, W, Y, O, B, G

## Accessories

### Wall mounted, 7-day programmable thermostat

Standard auto or manual changeover two stage heat / two stage cool

McQuay Part No. 107095901 (1-Pk, White with Wall Plate)



#### Features and benefits

- Simpleset™ logical programming for set-up and set-back temperatures and times
- Simpleset™ feature enables easy copying of one day's programming for the entire week
- Programmable fan to circulate air during any program setting.
- Vacation hold overrides programming
- Enables separate morning, day, evening, and night settings for every day of the week
- Clear, backlit display makes it easy to see time, temperature, and setpoint — even in the dark
- Automatically switches between heating and cooling modes
- A/C and heat pump modes – 4-minute time delay to protect compressor after it turns off
- Lockout feature prevents unwanted tampering
- Optional remote temperature sensor available

#### Specifications

##### Electrical rating:

- 24 VAC (18 to 30 VAC)
- 1 amp maximum per terminal
- 4 amp maximum total load
- 30-minute power loss memory retention
- Easy access terminal block

##### Temperature control ranges:

- 45°F to 90°F, Accuracy:  $\pm 1^\circ\text{F}$

##### System configurations:

- Single or two-stage heat/cool
- Single or two-stage heat pump

##### Terminations:

- R, C, W1/O/B, Y1, W2, Y2, G

### Optional remote sensor - Part No. 667720401



The fast, easy solution for temperature sensing problems.

- For tamper prone areas
- Poor airflow areas
- Troubled applications
- Foam gasket prevents drafts through wall opening
- Mounts to standard 2" x 4" outlet box
- $2\frac{3}{4}"\text{W} \times 4\frac{1}{2}"\text{H}$

### Wireless Temperature Control (T9000)

The T9000 Wireless Temperature Control is designed to provide precision temperature control without the installation labor and expense of wiring.

- Powered by AA batteries
- Mounts in any suitable location that will provide good temperature control.
- Large LCD display provides the user with current room temperature, set point temperature, time, program interval, and other system status information.

#### Programmable



#### Non-programmable



### Remote Control Node (RCN)

Used with the Wireless Temperature Control, the RCN interfaces with specific HVAC equipment, and communicates with its thermostat using unlicensed 900 MHz, radio frequency energy. Contact your local McQuay Representative for details.



# Accessories



## Subbase – Weight

3" (76mm) High Electrical.....	10 lbs. (5kg).
4" (102mm) High Electrical.....	12 lbs. (5.4kg)

## Electrical subbase 3" or 4" high

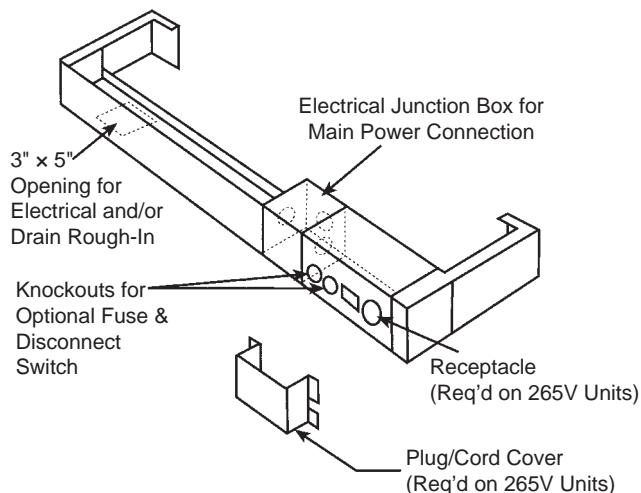
An electric subbase is available for the PDAE/ PDHE unit. The subbase height can be either 3" or 4". Leveling legs are supplied with the subbase which allow for an additional 1" adjustment. The electrical subbase requires a minimum of 4<sup>3</sup>/<sub>8</sub>" from the front edge of the wall sleeve to the finished wall.

### Subbase side dimension:

Electric: Adjustable from 4<sup>3</sup>/<sub>4</sub>" to 13<sup>3</sup>/<sub>4</sub>" (111mm to 349mm)

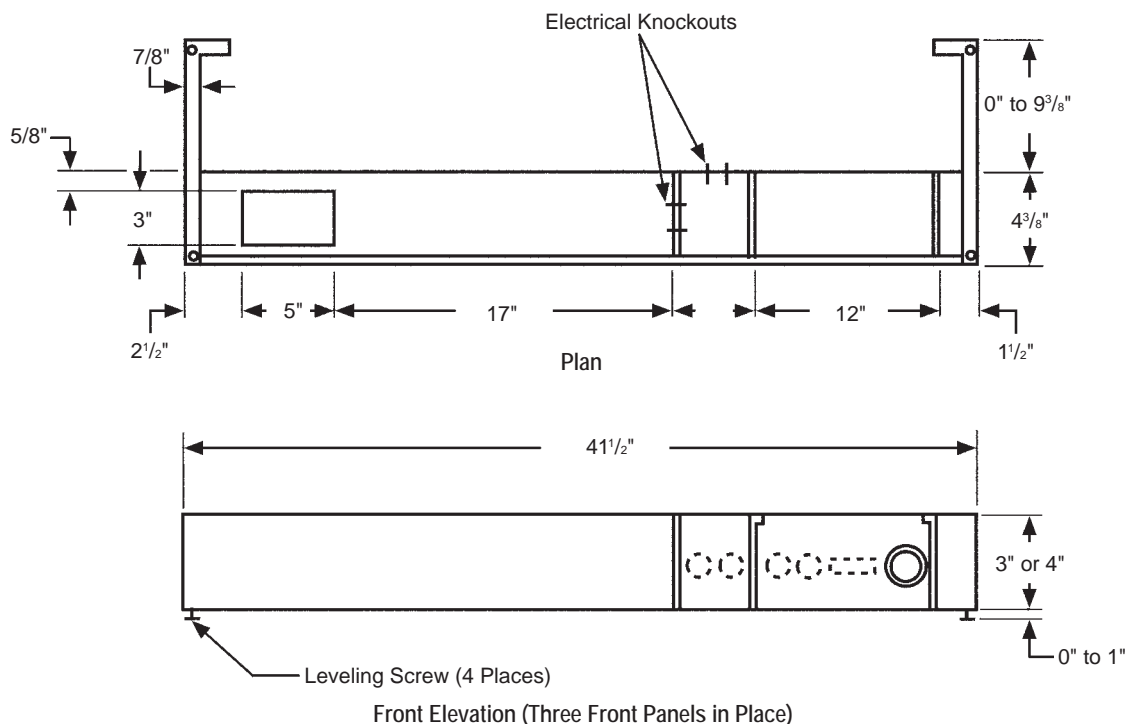
### Subbase height dimension:

Electric: 3" to 4" (76mm to 102mm) with 0" to 1" (0mm to 25m) leveling screw



### Notes:

1. Subbase is optional on 208V and 230V units. Subbase is standard on all 265V units. Electric subbase is flush with wall sleeve.
2. Subbase extends to front edge of unit when furnished with hydronic heat.





# Accessories

## Drain Kits

Drain kits are recommended for the heat pump units, and may be used on any unit as required. They eliminate excessive condensate accumulation which is generated during the heating cycle of the heat pump.

There are two types of drain kits employed with the Packaged Terminal equipment; internal drains and external drains.

### Internal Drain

An internal drain is mounted to the bottom of the wall sleeve prior to installation of the sleeve. Position this drain on the room side of the sleeve

and connect to an internal collection system.

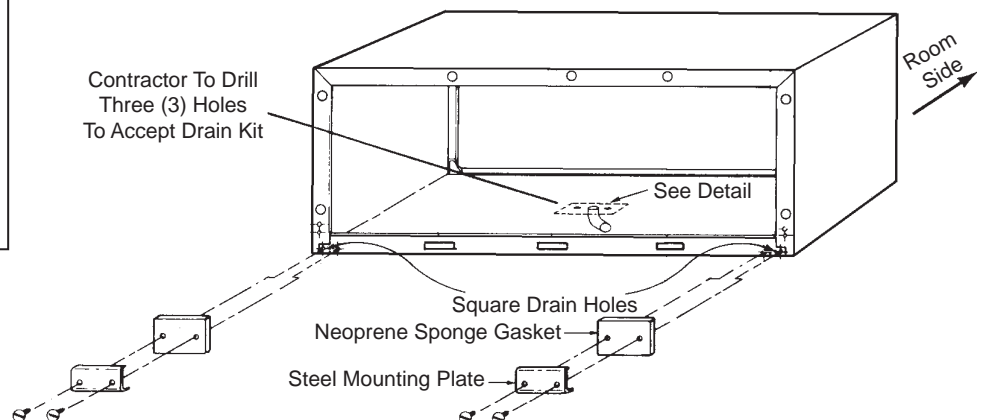
When using a subbase, a 3" × 5" opening is provided in the subbase for plumbing to the drain.

### External Drain

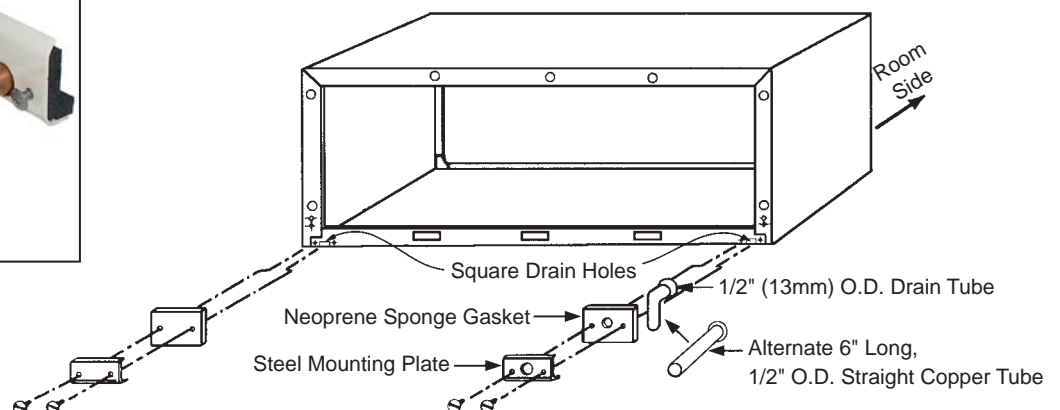
The external drain is attached to the rear of the wall sleeve, over one of the weep holes. A cap is provided to seal the remaining weep hole to force the excessive condensate to one side.

The excess condensate is then evacuated from the wall sleeve and allowed to drain to the outside of the building.

### Internal Drain Kit



### External Drain Kit



**Note:** Use of 6" straight drain tube will require modification of architectural louver.

# Accessories

## Wall Sleeve Extension

### PDAE/PDHE 16" x 44" Replacement Unit

The standard wall sleeve will accommodate the maximum wall thickness described in Table 2. For thicker walls, wall sleeve extensions are available from your local distributor. Air splitters will be included in the wall sleeve extension as shown in the illustrations below.

**Note:**  
When installing a new chassis into an existing wall sleeve with an extension, it will be necessary to relocate the two air splitters to match the dimensions shown in the illustrations (see Table 3).

### 16" x 44" Replacement Unit

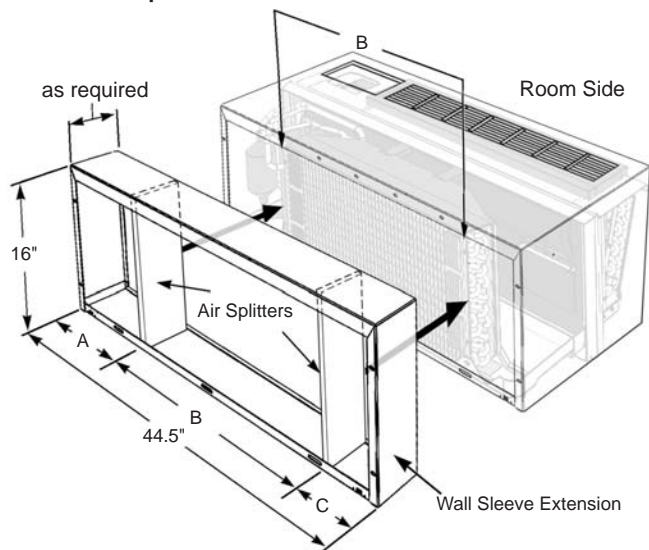


Table 2. Maximum Wall Thickness without Sleeve Extensions

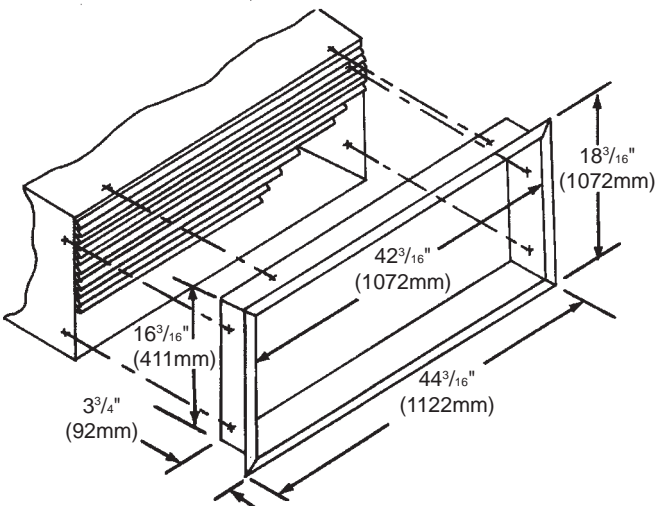
Louver Type	Maximum Wall Thickness	
	No Subbase	Standard Subbase
Architectural 1 1/8"	14 7/8"	10 3/8"

Table 3. Wall Sleeve Extension Splitter Location Dimensions

Dimension	16" x 44" Replacement Unit
A	11 7/8"
B	25"
C	7 5/8"

## Louver Frame

Louver frames should be used for panel wall and thin wall applications to assure positive anchoring to the wall. The cabinet/wall sleeve is installed flush with the outside of the building. The louver frame is placed around the cabinet/wall sleeve.



**Note:** Wall Sleeve rough opening when using a Louver Frame must be 16 5/8" x 42 5/8"



# Wiring Diagrams

## Premium (Programmable) Digital Control

### 1- Jumper Placement to Select System Module (See Jumper Detail)

- A- Place jumper across AC/HYD to select Air Conditioner/Hydronic Heat.
- B- Place jumper across AC/E to select Air Conditioner/Electric Heat.
- C- Place jumper across AC/HYD/E to select Air Conditioner/Hydronic/Electric.
- D- Place jumper across HP to select Heat Pump
- E- Place jumper across HP/E to select Heat Pump/Electric.

### 2- Jumper Placement to Select Fan Control:

- A- When in Fan Cycle Mode, fan operates for 2 minutes – Place jumper across 10, 20, 30, or 1 HR to select fan cycle off minutes which will be overridden by the room temperature.

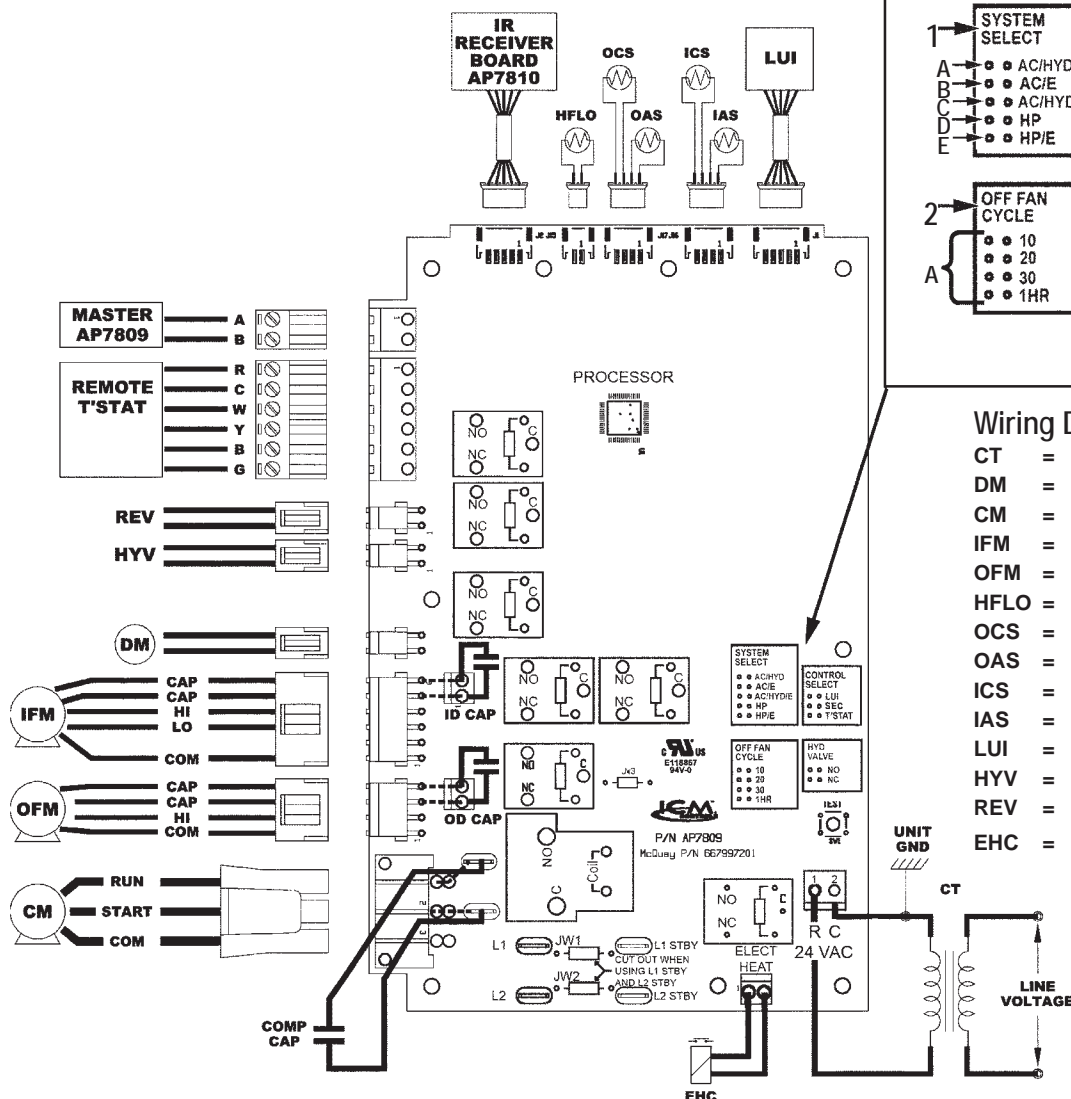
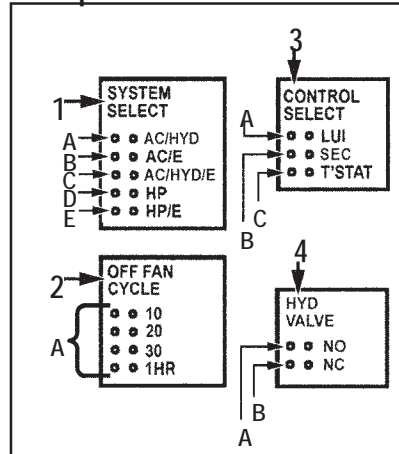
### 3- Jumper Placement to Select Controller Type:

- A- Place jumper across LUI to select unit mounted touchpad (Local User Interface).
- B- Place jumper across SLAVE to select SLAVE Control by a master unit.
- C- Place jumper across T'STAT to select remote, wall mounted programmable, or non-programmable thermostat.

### 4- Jumper Placement to Select Hydronic Valve:

- A- Place jumper across NO to select Normally Open Hydronic Valve.
- B- Place jumper across NC to select Normally Closed Hydronic Valve.

### Jumper Placement Detail



### Wiring Diagram Legend

- CT = Control Transformer
- DM = Damper Motor
- CM = Compressor Motor
- IFM = Indoor Fan Motor
- OFM = Outdoor Fan Motor
- HFLO = Heat Fan Lockout Sensor
- OCS = Outdoor Coil Sensor
- OAS = Outdoor Air Sensor
- ICS = Indoor Coil Sensor
- IAS = Indoor Air Sensor
- LUI = Local User Interface
- HYV = Hydronic Valve
- REV = Reversing Valve
- EHC = Electric Heat Contactor



# Wiring Diagrams

## Standard (Non-Programmable) Digital Control

### 1- Jumper Placement to Select System Module (See Jumper Detail)

- A- Place jumper across AC/E to select Air Conditioner with Electric Heat.
- B- Place jumper across HP to select Heat Pump
- C- Place jumper across HP/E to select Heat Pump with Electric Back-up Heat.

### 2- Jumper Placement to Select Fan Control

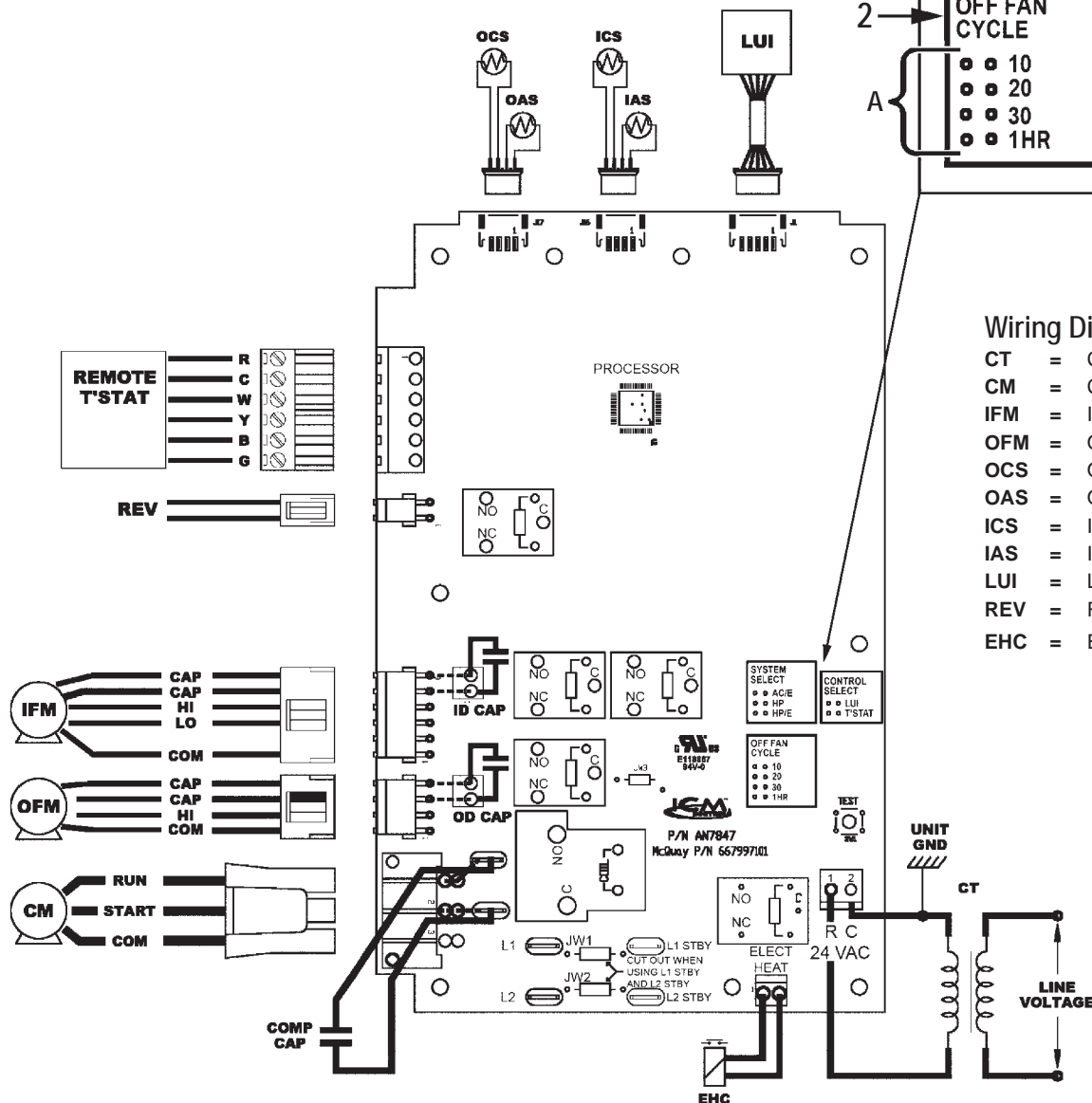
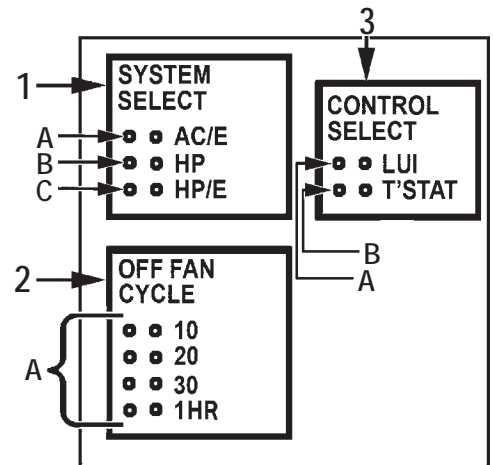
- A- When in Fan Cycle Mode, fan operates for 2 minutes – Place jumper across 10, 20, 30, or 1 HR to select fan cycle off minutes which will be overridden by the room temperature.

### 3- Jumper Placement to Select

#### Controller Type:

- A- Place jumper across LUI to select unit mounted touchpad (Local User Interface).
- B- Place jumper across T'STAT to select remote, wall mounted programmable, or non-programmable thermostat.

### Jumper Placement Detail



### Wiring Diagram Legend

- CT = Control Transformer
- CM = Compressor Motor
- IFM = Indoor Fan Motor
- OFM = Outdoor Fan Motor
- OCS = Outdoor Coil Sensor
- OAS = Outdoor Air Sensor
- ICS = Indoor Coil Sensor
- IAS = Indoor Air Sensor
- LUI = Local User Interface
- REV = Reversing Valve
- EHC = Electric Heat Contactor

# Wiring Diagrams

## Digital Control Board With Standby Power

The standby power connections, L1 STBY and L2 STBY are meant to run the indoor motor at a separate voltage from the other motors, compressor and outdoor motor. When used as such, the jumpers, JH1 and JH2, must be cut. This renders L1 & L2 and L1 STBY and L2 STBY isolated from each other.

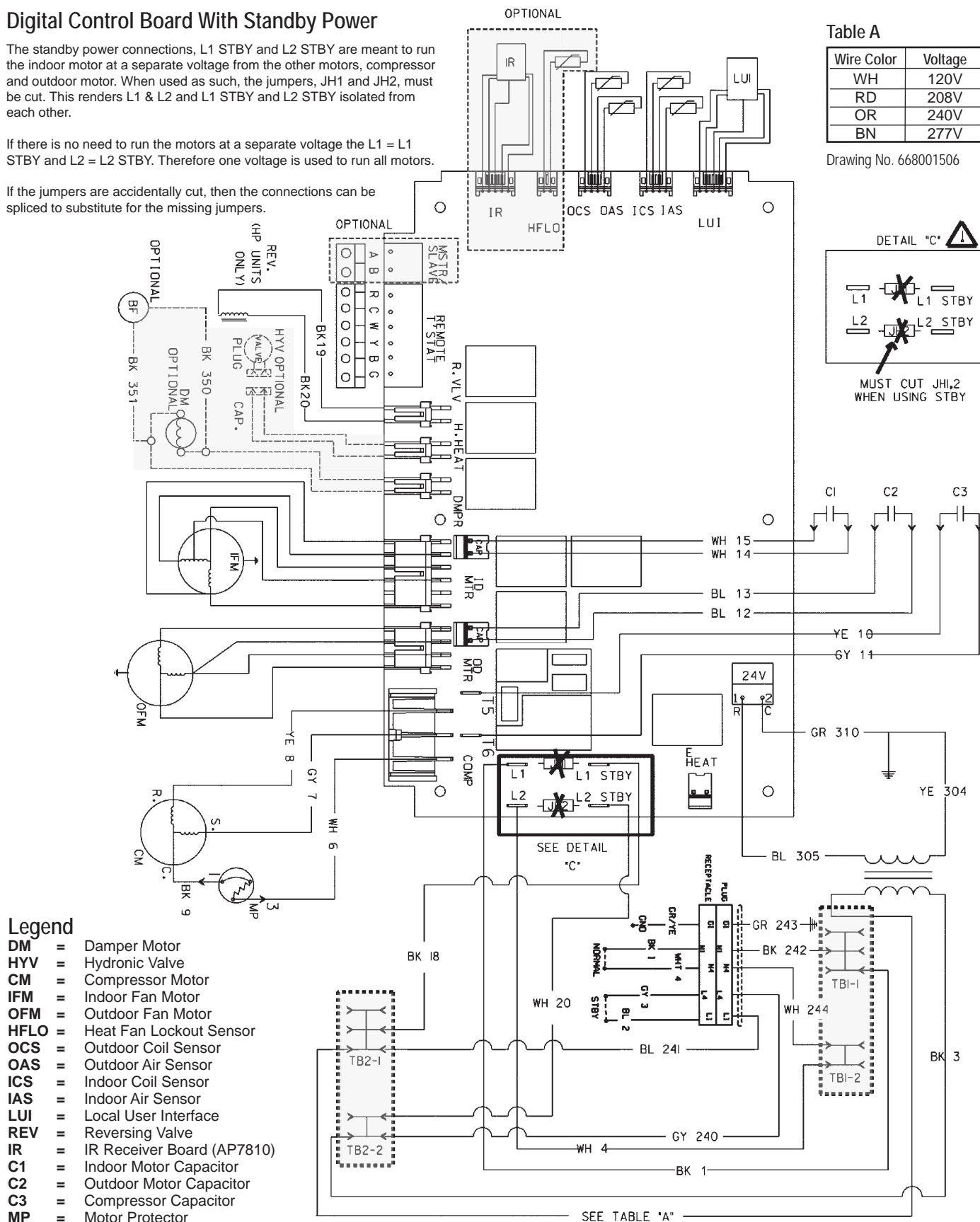
If there is no need to run the motors at a separate voltage the L1 = L1 STBY and L2 = L2 STBY. Therefore one voltage is used to run all motors.

If the jumpers are accidentally cut, then the connections can be spliced to substitute for the missing jumpers.

Table A

Wire Color	Voltage
WH	120V
RD	208V
OR	240V
BN	277V

Drawing No. 668001506



**Note:** The gray tinted areas in the wiring diagram; are options available only with the premium control board.  
For the latest drawing version refer to the wiring diagram located on the inside of the controls access panel of the unit.



# Engineering Guide Specifications – 16" × 44" Flat Top Configuration

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Furnish and install where shown on plans (packaged terminal air conditioners) (packaged terminal heat pumps) of the sizes and capacities shown on the schedule. The units shall be located as shown on the drawings and shall include cabinet/wall sleeve, chassis, outdoor louver, and room cabinet. (Units furnished with hydronic heat shall also include a hydronic subbase, valve and appropriate controls).

All units shall be UL listed for safety and ETL certified for performance. Units shall be McQuay Comfort Conditioner, PDAE/PDHE, or equal. Overall dimensions for the basic unit shall not exceed 42½" wide, 16½" high, and 22" deep. (Overall dimensions of the wall sleeve shall not exceed 16" high, 42" wide and 13¾" deep).

(Units furnished with hydronic heat shall not exceed 43" wide, 24½" high and 20" deep).

(Units furnished with an electrical subbase shall not exceed 43" wide, 24½" high and 22" deep).

All units shall operate on \_\_\_\_ volts, 60 Hz, single-phase power.

**Heating/Cooling chassis** – Chassis shall be slide-in, plug-in type with a self-contained, hermetically sealed refrigerant circuit. All chassis sheet metal parts shall be constructed of either powder-coated A-60 or G-60 galvanized steel for maximum corrosion resistance. The chassis shall consist of the following components:

Vibration isolated compressor; rifled copper tubed evaporator and condenser coils with high efficiency raised lance aluminum plate fins mechanically expanded to the tubes for maximum heat transfer; and a capillary restrictor type refrigerant metering device. Coils shall be factory tested at 300 psig. (Heat pump models shall also include reversing valve and charge balancing device). A positive closing (manual) fresh air damper may be located within the chassis to provide fresh air during fan operation.

Airflow system shall include separate fan motors for the condenser and evaporator sections. The condenser fan motor shall be a single-speed, totally enclosed, permanently lubricated fan motor. Condenser fan shall be propeller-type with a slinger ring and shall be constructed of aluminum. The indoor fan motor shall be a two-speed, totally enclosed; permanently lubricated fan motor must be positioned on the indoor side of the bulkhead so as to be completely within the conditioned, filtered airstream. The indoor blower fan shall be a forward-curved tangential design to provide even airflow across the evaporator coil.

## During the cooling cycle:

The compressor, the outdoor fan motor and the indoor fan motor shall be energized. Condensation accumulated on the evaporator coil shall be drained into the outdoor section where it is to be picked up by the condenser fan/slinger ring and evaporated against the outdoor coil. In the cool mode, the compressor will cut in if the space temperature is at least 1°F above the thermostat set point and will cut out when the space temperature is approximately 2°F below set point, subject to timing protections.

## During the heating cycle:

**Electric Resistance Heat** – Control will call for electric heat when the space temperature is 1°F lower than the set point. The control will cease its call when the space temperature is 3°F or higher than set point.

Only the indoor fan motor and electric resistance heater are energized. The outdoor condenser fan motor and compressor shall not be energized. Heater shall be open wire type with quick response and high limit cutout. Heaters shall be sized to meet heating requirements as shown on the schedule. Electric resistance heaters must be placed behind the indoor evaporator coil and must not be visible through the indoor discharge grille. When the heater cuts out the indoor fan continues to run for 15 seconds at the set speed, regardless of On or Off mode. After 15 seconds the fan will stop running if unit is in Off mode, else the fan operation will depend on Fan Continuous or Fan Cycle setting.

Hydronic, Hot water or Steam, heat – Only the indoor fan motor, the (normally open) (normally closed) valve and automatic fresh air damper shall be energized. The outdoor condenser fan motor and compressor shall not be energized.

# Engineering Guide Specifications – 16" × 44" Flat Top Configuration

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**Hydronic Heat - Heat Fan Lock Out** – When the control is in the heat mode and calling for heat, the indoor fan shall not turn on until the HFLO sensor is above 115°F. If at any time while the unit is in heat mode the HFLO sensor is below 95°F, the indoor fan shall turn off immediately. Control will check if the HFLO sensor temperature is above 115°F for 2 seconds before resuming indoor fan operation.

**Hydronic with Intermediate Electric heat** – Upon the call for heating and thereafter the HFLO sensor temperature will be monitored. A trend in HFLO sensor Temperature shall determine which form of heat is to be used. If during the 90 seconds that Hydronic is the heat source and the HFLO sensor is above 105°F and is increasing at 2°F per minute then Hydronic is the heat source. If during this 90 seconds, the temperature of the HFLO sensor is above 105°F and is not increasing at 2°F per minute then Electric is the heat source. The hydronic valve is opened for 90 seconds. After 90 seconds whether Hydronic or Electric provides the heating is determined by the following:

If HFLO sensor temperature is less than 105°F, Electric provides the heat.

If HFLO sensor temperature is greater than 115°F, Hydronic provides the heat

**Reverse Cycle Heat Pump with back-up electric heat** – The reversing valve, the compressor, the outdoor condenser fan motor and the indoor fan motor shall be energized. Reverse cycle heating shall occur when the outdoor temperatures are 35°F and above. If outdoor coil temperature drops below 20°F or the Outdoor air temperature drops to 35°F or less, Electric heat is the only source of heat. When the Outdoor coil temperature raises back to 40°F and above, then the Compressor reverse cycle or Electric heater is used.

A temperature-sensing device shall be used to monitor the outdoor coil temperature to limit frost buildup. Defrosting of the outdoor coil will be activated when outdoor coil temperature drops below 20°F or outdoor air temperature drops to 35°F or less. Defrosting is terminated when outdoor coil temperature rises back to 40°F. During defrosting, both compressor and the outdoor fan are turned off. The indoor fan will run at its set speed.

Condensation accumulated during reverse cycle heating must NOT be evaporated against the indoor coil so as to prevent contamination of the indoor air with pollutants and odors. Condensation must be disposed of using a (external) (internal) drain system as shown on plans.

On heat pump models, a Low Ambient temperature limit Sensor (OAS) shall be incorporated to energize the electric resistance heaters at 35°F outdoor air temperature.

**Reverse Cycle Heat Pump without back-up electric heat** – The reversing valve, the compressor, the outdoor condenser fan motor and the indoor fan motor shall be energized. Reverse cycle heating shall occur when the outdoor temperatures are 35°F and above. If outdoor coil temperature drops below 20°F or the Outdoor air temperature drops to 35°F or less, the compressor stops and there is no source of heat. When the Outdoor coil temperature raises back to 40°F and above, then the compressor reverse cycle is the heat source.

A temperature-sensing device shall be used to monitor the outdoor coil temperature to limit frost buildup. Defrosting of the outdoor coil will be activated when outdoor coil temperature drops below 20°F or outdoor air temperature drops to 35°F or less. Defrosting is terminated when outdoor coil temperature rises back to 40°F. During defrosting, both compressor and the outdoor fan are turned off.

The indoor fan will stop if indoor coil temperature falls below 78°F. It will restart at its set speed when indoor coil temperature rises back to 80°F.

Condensation accumulated during reverse cycle heating must NOT be evaporated against the indoor coil so as to prevent contamination of the indoor air with pollutants and odors. Condensation must be disposed of using a (external) (internal) drain system as shown on plans.

**Control module** – The PDAC/HP Control module is used to control a PDAC or PDHP unit that includes both an integral air conditioner and a source of heat. The Digital Control is operated with a Touchpad, IR Remote or 24 volt, Wall Mounted Thermostat.



# Engineering Guide Specifications – 16" × 44" Flat Top Configuration

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## Inputs and outputs

The PDAC/HP control module offers the following inputs:

1. Indoor Coil Sensor (ICS)
2. Indoor Air Sensor (IAS)
3. Outdoor Air Sensor (OAS)
4. Inputs from Remote Thermostat (R, B, G, Y, W)
5. Heat Fan Lock Out Sensor (HFLO)
6. Power Supply, 24VAC

The PDAC/HP control module offers the following outputs:

1. Compressor Output (COM)
2. Outdoor Fan (FAN)
3. Indoor Fan Fan cycle or Fan Continuous and Blower Hi or Blower Lo shall be incorporated to allow either continuous or automatic fan cycle operation at the selected fan speed. When choosing automatic fan cycle operation, the fan shall be energized only when the compressor or electric resistance heaters are energized.
4. Damper Control (DAMPER)
5. Hydronic Valve (HYV)

On heat pump models, a Low Ambient temperature limit Sensor (OAS) shall be incorporated to energize the electric resistance heaters at 35°F outdoor air temperature.

**Room Cabinet/Wall Sleeve** — Shall be entirely constructed of zinc coated phosphatized steel. Top and sides shall be 18-gauge. Base pan shall be 16-gauge. The entire wall sleeve shall be coated with an electrostatically applied, baked-on, Antique Ivory, appliance quality, powder paint for maximum corrosion protection.

Installed height of the room cabinet/wall sleeve shall not exceed 163/8" (416mm). Installed height of room cabinet/wall sleeve with subbase shall not exceed 203/8" (518mm) for electric heat or 223/8" (568mm) for hydronic heat.

Discharge grilles shall be four four-position, [stamped] [extruded] aluminum to adjust conditioner air delivery pattern without use of tools.) Front panel shall be capable of being opened and/or removed without the use of tools.

**Discharge grille** – Shall be an integral part of the front panel and shall be a raised style. Discharge grille shall be made of the same polycarbonate material as the room cabinet side panels. Grille shall be sectional, two-position reversible, tamper proof, and carry a flame test rating of 94V0 in accordance with UL standard 494.

**Control access door** – Shall be mounted on the right-hand side and must meet the spillage requirements of UL standard 484.

## Engineering Guide Specifications – 16" × 44" Flat Top Configuration

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**Filtration (Standard)** – Room side return air shall be completely filtered through a permanent, washable polypropylene mesh filter. Foam type filters are not acceptable. Filter must be a UL listed class II, 38% average arrestance efficiency (ASHRAE test) air filter with low resistance to airflow (0.02 w.g. at 300 CFM) and high dust holding capacity of 55 grams.

**Wall Sleeve (Standard) (BWS) –**

The BWS wall sleeve is constructed from galvanized, primed and pre-painted Antique Ivory 18 gauge steel is insulated and arrives in a removable plastic protective film.

**Wall Sleeve (Optional) (CWS)** – The CWS wall sleeve shall be entirely constructed of G-60 galvanized, phosphatized, 18-gauge steel. It shall be finished with a baked on, epoxy based powder coat paint, which is to provide maximum corrosion protection. Additionally, the top interior and side interior surfaces shall be insulated. Wall sleeves with ordinary enamel finish or those made from polymeric material are not acceptable. Wall sleeves shall have factory provisions for use of appropriate fastening devices to secure sleeve to the wall through the sides.

**Outside air louvers** – Shall be (stamped) (architectural) anodized aluminum as shown on plans. Louver shall be (finished natural) (painted) as shown on the schedule. (Stamped louvers shall be heavy gauge anodized aluminum of no less than 16-gauge). (Architectural louvers shall have rounded corners or be supplied with end caps). Special field fabricated louvers must be approved by the PTAC manufacturer as to free area and air circulation requirements.

**Subbase (electrical)** – An (3")(4") electrical subbase shall be furnished as shown on plans. Each electrical subbase shall be UL listed and conform to the National Electrical Code. Subbase must have adjustable side channels with predrilled adjusting holes and score lines. Subbase shall have four (4) adjustable leveling legs each with 1" adjustment.

## Warranty

All McQuay equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local McQuay Representative for warranty details. Refer to Form 933-43285Y. To find your local McQuay Representative, go to [www.mcquay.com](http://www.mcquay.com).

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to **[www.mcquay.com](http://www.mcquay.com)**.

